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TITLE : ALUMINA SINTERED COMPACT, ITS PRODUCTION AND PLASMA- RESISTANT MEMBER

ABSTRACT : PROBLEM TO BE SOLVED: To obtain an alumina sintered compact having excellent corrosion resistance to plasma of a halogenated gas and to provide a method for producing the sintered compact.

SOLUTION: A densified alumina sintered compact is embedded in powder of a compound of an element of the group 3a of the periodic table and/or powder of a compound of the formula  $3\text{RE}_2\text{O}_3 \cdot 5\text{Al}_2\text{O}_3$  (RE: an element of the group 3a of the periodic table) and heat-treated at  $\geq 1,3000^\circ\text{C}$  or the surface of the alumina molding product is coated with a slurry containing the powder of the compound of the element of the group 3a of the periodic table and/or the powder of the compound of the formula  $3\text{RE}_2\text{O}_3 \cdot 5\text{Al}_2\text{O}_3$  (RE: the element of the group 3a of the periodic table) and burned at  $1,400\text{-}1,800^\circ\text{C}$ . A crystalline compound layer of a compound oxide of the element of the group 3a of the periodic table and aluminum, such as  $3\text{RE}_2\text{O}_3 \cdot 5\text{Al}_2\text{O}_3$  (RE: the element of the group 3a of the periodic table), etc., is formed on the surface of the alumina sintered compact to improve plasma resistance to plasma of a halogenated gas.

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